Claims

Claim 1 (original): A mutant virus having a genome which is defective in respect of a selected gene that is essential for the production of infectious new virus particles, and which carries heterologous genetic material encoding an immunomodulatory protein, such that said mutant virus can infect normal host cells and cause expression therein of said heterologous genetic material encoding said immunomodulatory protein, but said mutant virus cannot cause production of infectious new virus particles except when said virus infects recombinant complementing host cells which have been made to carry and can express a gene that provides the function of said essential viral gene.

Claim 2 (original): A mutant virus according to claim 1, wherein said heterologous genetic material encoding said immunomodulatory protein is inserted at a site from which said essential viral gene has been deleted.

Claim 3 (original): A mutant virus according to claim 1, wherein the defect is in a viral glycoprotein gene.

Claim 4 (original): A mutant virus according to claim 1 which is a mutant of a herpesvirus.

Claim 5 (original): A mutant virus according to claim 1 which is a mutant of herpes simplex virus (HSV).

Claim 6 (previously amended): A mutant virus according to claim 3 wherein the defect is in a herpesviral glycoprotein gene.

Claim 7 (original): A mutant virus according to claim 6 wherein the defect is in a gene corresponding to glycoprotein gH, gD, gB or gL.

Claim 8 (original): A mutant virus according to claim 1, wherein said heterologous genetic material encodes a protein selected from cytokines, chemokines, complement components, immune system accessory and adhesion molecules, and receptors therefor of human or non-human animal specificity.

Claim 9 (original): A mutant virus according to claim 8, wherein the heterologous genetic material encodes a protein selected from GM-CSF, IL-2, IL-12, OX40, OX40L (gp34), and CD40L.

Claim 10 (original): A process of using a mutant virus according to claim 1 as an immunogen, for prophylactic or therapeutic use in generating an immune response, which comprises treating a subject with said mutant virus.

Claim 11 (original): A process according to claim 10, where said mutant virus encodes a heterologous antigen and said immune response is against said antigen.

Claim 12 (original): A process for preparing an immunogen such as a vaccine for therapeutic or prophylactic use in tumour therapy which comprises infecting cells carrying a tumour antigen with a mutant virus according to claim 1.

Claim 13 (original): A process for in-vitro expansion of (e.g. virus-specific) cytotoxic T cells which comprises contacting T cells with a mutant virus according to claim 1.

Claim 14 (original): A process of therapeutic or prophylactic corrective gene therapy which comprises infecting cells of a subject to be treated with a mutant virus according to claim 1, encoding a gene to be delivered to said subject.

Claim 15 (original): A process of using a mutant virus according to claim 1 to provide an immunostimulus to a treated human or non-human animal subject, comprising:

(i) contacting the mutant virus ex-vivo with a preparation of cells capable after infection with the virus vector of providing an immunostimulus to a subject to be treated; and

(ii) using the infected cells to deliver an immune stimulus to the subject to be treated.

Claim 16 (original): A process according to claim 15, wherein the infected cells are used to deliver an immune stimulus to the subject to be treated by direct administration of the infected cells as a vaccine e.g. after inactivation before administration, e.g. after irradiation.

Claim 17 (original): A process according to claim 15, wherein the infected cells are used to deliver an immune stimulus to the subject to be treated by use of the cells to prime or stimulate ex-vivo immune-competent cells such as cells of the immune system of the subject to be treated, followed by re-administration of the immune-competent cells.

Claim 18 (original): A process according to claim 17, wherein the cells infected ex-vivo with the virus vector are autologous cells,

Claim 19 (original): A process according to claim 17, wherein the cells infected ex-vivo with the virus vector are heterologous cells, e.g. comprising cells of a heterologous tumour cell line.